TOWN OF VERNON

REGULATIONS & SPECIFICATIONS

REGARDING

CURBS, SIDEWALKS, & STREET EXCAVATIONS

ENGINEERING DEPARTMENT
14 PARK PLACE
VERNON, CONN. 06066

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GENERAL SPECIFICATIONS

1.1 DEFINITION OF TERMS:

Whenever in these specifications the following terms are used, the intent and meaning shall be as follows:

1.1.1. "Town" Town of Vernon, Connecticut

1.1.2. "Public Works" Department of Public Works of the Town of Vernon

1.1.3. "Engineering" Engineering Department of the Town of Vernon

1.1.4. "Town Hall or Memorial Building" Executive Office of the Town of Vernon, 14 Park Place, Vernon Connecticut.

1.1.5. "Director" Director of Public Works or his authorized representative

1.1.6. "Engineer" Town Engineer or his authorized representative

1.1.7. "Inspector" A representative of the Engineer, assigned to make the following:

All necessary inspections of condition of all sidewalks and curbs within the Town accepted streets and to recommend necessary repair work. All necessary inspections of construction and materials of sidewalk and curbs, and street excavations.

1.1.8. "Street" The word "street" shall be construed to embrace streets, avenues, boulevards, highways, roads, alleys, lanes, viaducts, bridges, and the approaches thereto and all the other public thoroughfares in the Town and shall mean all that part thereof from street line to street line of the premises abutting thereon.

1.1.9. "Laboratory" The testing laboratory of the Engineering Department or a commercial testing laboratory approved by the Engineer.

1.1.10. "Contractor" An insured, bonded and licensed contractor, performing work covered by these specifications under permit issued through the Engineering Department acting directly or through his agents or employees.

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1.1.11. "Sub-Contractor" Any other insured, bonded and licensed contractor to whom the contractor sublets or assigns any part or parts of the work covered by a permit, with the approval of the Engineer.

1.1.12. "Curb" The vertical edging of the paved portion of a street, of granite, concrete or bituminous concrete installed in conformance with these specifications and accepted by the Town for future maintenance.

1.1.13. "Town-Owned Sidewalk" Paved walkway between curb and street line adjacent to town-owned property of 5-inch thick or 8-inch thick reinforced Portland cement concrete or 2" thick bituminous concrete and constructed in conformance with these specifications.

1.1.14. "Driveway" Paved access way for vehicles from curb to front of sidewalk and back of sidewalk to street line or in the case where there is no sidewalk. The access way is from curb or gutterline to the street line. Driving surface of the driveway may be 8" thick reinforced portland cement concrete, 2" thick bituminous concrete or 2 1/8" minimum thick concrete pavers. (See driveway ordinance #142 for specifications). The driveway will remain the responsibility of the owner for future maintenance.

1.1.15. "Ramps" Paved accessway for vehicles from curb to street line of 8" thick Portland Cement Concrete or 2-inch thick bituminous concrete and constructed in conformance with the driveway regulations and to remain the responsibility of the owner for future maintenance. This type of ramp to be used only in residential zones where there is no granite curbs and in industrial and commercial zones where there is neither granite curbs nor concrete sidewalks.

1.1.16. "Eight-Inch Walk" In such locations as may be determined by the Engineer, at all driveways constructed in accordance with Town Standards shall be 8-inch thick 4,000 pound reinforced Portland cement concrete, constructed in conformance with these specifications.

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1.1. DEFINITIONS OF TERMS (cont.)

1.1.17. "Paving Outside the Sidewalk" With the approval of the Engineer, bituminous concrete or cement concrete paving may be constructed between the curb and sidewalk and back of the sidewalk to the street line. Two-inch bituminous conrete shall be constructed in accordance with these specifications. Portland Cement Concrete shall be of the same construction as the sidewalk and in accordance with these specifications and a longitudinal one-half inch expansion joint shall be placed adjacent to the sidewalk.

1.1.18. "Non-Accepted Construction" Construction or curbing of any material other than granite, concrete or bituminous or a sidewalk of any material other than Portland cement concrete without written approval of the Engineer is not allowed.

1.1.19. "Areaways" Any vault, cellarway or areaway or any cover, grating or door above the same within any street lines.

1.1.20. "Wheelchair Ramp" A paved way from the curb to or through the sidewalk.

1.1.21. "Authorized Representative" An employee of the contractor responsible to the contractor for accepting written and oral orders on the job from the Engineer (or his representative) and with the authority to take action on said orders in the contractor's absence.

1.1.22. "Roadway" The paved portion of the street right-of-way between the curbs and/or the vehicular travel portion of the street right-of-way.

1.1.23. "Repair" Shall mean work on utility which restores the utility to its original working state without changing the character, location or size of the utility.

1.1.24. "C.U.U.P.P." - Connecticut Underground Utility Protection Plan also known as Call before you dig. State Law requires anyone excavating to call 1-800-922-4455 at least 2 full working days prior to excavating so utility companies can mark out their underground locations.

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1.2 PERMIT REQUIREMENTS FOR CURB, WALK AND STREET EXCAVATION WORK:

1.2.1. All permits shall expire 30 days after they have been received by the Engineering Department. Prior to renewal of the permit, the Engineer shall review the performance of the permitee, if this performance is found to be unsatisfactory, renewal shall be denied until the permitee shall guarantee future satisfactory performance as the Engineer may require. For renewal, the permitee shall personally (except a corporation may be represented by an authorized agent) appear at the Engineering Department Office, Town Hall.

1.2.2. Under no circumstances shall a permit be approved without a valid C.U.U.P.P. (Connecticut Underground Utility Protection Plan, also known as call before you dig) number. These numbers must be renewed every 30 days by State Law. If the numbers have not been renewed, the permit will not be renewed and no further work will be allowed.

1.2.3. Every contractor making application for a permit shall file with the Town, a satisfactory performance bond, of a surety company authorized to do business in the town in the amount of five thousand dollars ($5,000.00) and on the form provided by the Town.

The performance bond shall be in force for one (1) year after the completion of the sidewalk and curb work and two (2) years after any road repairs.

1.2.4 The Contractor shall carry insurance under which the Town shall be named as an "additional insured" for the whole duration of this work, including the maintenance period provided herein, with an insurance company or companies licensed to write such insurance in Connecticut, against the following risks in not less than the amounts as here indicated:

Bodily Injury Liabilities shall be for not less than $100,000.00 for injuries to or death of any one individual and a total of not less than $500,000.00 to those injured or killed in any one accident.

Property Damage Liability shall include damage to property caused by explosives, blasting, vehicles, equipment, trenches or from any other cause and shall be not less than $100,000.00.

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Each contractor shall file with the Town Engineer a certificate of policy covering Workmen's Compensation Insurance, which shall remain in full force for at least 12 months from the completion date of the project. The cancellation of insurance automatically suspends the permit.

1.2.5. The applicant for a permit shall file with the Engineer his business address, the name under which business is done and his telephone number. The permittee shall notify the Engineer promptly of any change in the above information. Any orders or notices which the Engineer or his authorized representative may send by certified mail to the permitee at his address on file, shall be considered as due notice delivered to him personally and shall relieve the Town of further obligation.

1.2.6. No contractor shall take out a permit in his name for another person nor allow another person to use his name in obtaining a permit. No contractor shall employ another contractor to do work for him under a permit unless that subcontactor has a satisfactory performance bond and insurance on file with the Engineering Department.

1.2.7. Any construction covered by these specifications within the street lines of any street performed by contractor without a permit will be rejected. The Engineer will order the abutting property owner or the contractor to engage a contractor to remove the rejected work and to replace it in conformance with these specifications, at no cost to the Town. Should this fail to be done, the Engineer will remove and replace the rejected work in conformance with these specifications and the town will then bill the abutting property owner or the contactor for all costs involved.

1.2.8. A contractor who proposes to do any curb construction or repair, cement concrete walk or driveway construction or repair and/or street reconstruction or other miscellaneous work within the street shall first obtain a permit. Application shall be made in writing, on a form provided at the Engineering Office in the Town Hall, by the contractor 72 hours in advance of start of work. A permit shall be taken out for each location or address at which the contractor proposes to work, except one permit may cover adjacent locations that belong to the same owner on one street.

1.2.9. No work shall commence until the permit has been approved by the Engineering Dept. and is on the job in the hands of the contractor's authorized representative. The permit shall be on the job at all times work is being performed and shall be presented for inspection to the Director or the Engineer, their authorized representatives, or Inspectors assigned to the work, if so requested.

1.2.10. On all permits for construction or repair of sidewalk and street excavations and other work except curb and Town contracts, the contractor shall enter the name and address of the abutting property owner on all copies of the permit.

1.2.11. A contractor who proposes to repair a sidewalk, construct or repair a drive ramp and other miscellaneous work within the street, shall obtain a the permit at the

Engineering office. He shall in the case of new construction, request line and grade information and he shall be responsible for seeing that the curb and walk layout is entered on the permit.

1.2.12. In general, no permits will be issued between December first and April first. After November 15th or should the weather turn cold, air temperature below 32F for more than 12 hours per day for 5 consecutive days, issuance of permits will be suspended before December 1st. After March 1st, should the weather turn warm, air temperature above 32F for more than 18 hours per day for 5 consecutive days, issuance of permits will be resumed prior to April 1st. In case of an extenuating circumstance, only the Engineer, himself, may order a permit issued after the closing date for the season. All construction on all regularly issued permits shall cease on December 15th, at this time, all uncompleted work shall be made safe and passable, as ordered by the Engineer, and shall be maintained so by the contractor until completion in the spring. Temporary construction and maintenance will be provided by the contractor.

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1.3 LICENSE:

1.3.1 Every contractor wishing to work within the public right of way in Vernon shall first obtain a license per Ordinance # . In order to obtain a permit, a contractor must show his ability in installing curbs and/or sidewalks to the satisfaction of the Town Engineer. All contractors shall be automatically licensed for one project per construction season. If that project is acceptable to the Town Engineer, the contractor shall be issued a license. If the project is not acceptable, the contractor shall be notified in writing to make repairs. If the repairs are made to the satisfaction of the Town Engineer the contractor shall be issued a license. If repairs are not made, the contractor will not be issued a license and he will not be permitted to perform work in Town until such time that saftisfactory repairs are made by the stated contractor.

1.3.2 Once a contractor has been issued a license, he is still under obligation to maintain the acceptable quality of work. If a contractor fails to make satisfactory repairs to three (3) projects in one construction season, his license will be revoked until such time that all repairs are made.

1.4 CONTRACTOR'S RESPONSIBILITY

1.4.1. The contractor shall guarantee the work done for sidewalk and curb work under each permit issued him for a period of one year after completion and final acceptance against any failure caused by defective materials or defective workmanship. The contractor shall guarantee the street repair work for all excavations under each permit issued him for a period of two (2) years after completion of the permanent patch against any failure caused by defective materials or defective workmanship. The contractor will at any time during this period, upon notification in writing from the Engineer and without expense to the Town, immediately execute all repairs which may be necessary as determined by the Engineer.

1.4.2. The contractor shall cooperate with the various departments of the Town having jurisdiction or interests in certain features of the work. He shall schedule and conduct his work so as to comply with the regulations of these departments and shall have authorized representatives on the job whenever work is being done. Twenty-four hours before commencing work in a "Critical Area" which requires the detour of traffic or the closing of one lane,

the contractor shall be responsible for notifying the Vernon Board of Education, Police Department, and Fire Department as to the location and nature of the proposed work. He shall also be responsible for complying with any and all directives they may issue at that time. Should there be Traffic Control Signs, signals or parking meters within the work site that will require removal or relocation, the Contractor shall call the Director and request instructions. Any proposed work adjacent to a town tree (one within the street line) should be reported to the Town Tree Warden at Public Works.

1.4.3. The contractor shall give the work his constant attention to facilitate the progress thereof and shall cooperate and promptly comply with all orders or directions of the Engineer. In the absence of the contractor, there shall be an authorized representative on the project to accept all orders and directions from the Engineer. He shall have full authority to promptly carry out such orders and directions within the terms of the specifications and to supply such tools, labor equipment materials and incidentials as may be required.

1.4.4. The contractor shall be responsible for notifying the owner of any utility appurtenances he may encounter, above or below ground, that he may have damaged or that may require adjustment or relocation. The contractor shall cooperate with the owner of said utility and schedule and conduct his work so as not to interfere with or hinder the completion of their work.

1.4.5. The contractor shall conduct the work at all times in such a manner as to insure the safety and least possible obstruction to traffic. The convenience and safety of the general public and of the residents along and adjacent to the street shall be provided for in an adequate and satisfactory manner. Materials stored within the street shall be placed so as to cause as little obstruction to the public as possible under the conditions. No street or section of the street shall be closed without written permission of the Engineer and the Chief of Police. The safety provisions of applicable laws, building and construction codes and safety codes approved by the State Labor Commissioner shall be observed. The contractor shall provide sufficient suitable barricades to exclude and prevent injury to pedestrians, vehicles and animals. He shall also provide a sufficient number of yellow warning lights on or near the work from twilight in the evening until sunrise. If required by the Chief of Police, the contractor shall provide, and maintain temporary signs for the control of traffic and flagmen or uniformed policemen to supplement traffic control.

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1.5 INSPECTION OF THE WORK:

1.5.1. The Engineer and/or his duly-authorized representatives shall be the judge of the character, nature and fitness of all the work done and all the material furnished. He shall decide as to the meaning, intent and performance of these specifications. The entire work shall be done under his supervision and to his satisfaction and his decisions upon all questions relating to said work shall be binding upon the contractor.

1.6 LINE AND GRADE:

1.6.1. The Engineer may furnish lines, grades and measurements necessary to layout the work. Such stakes or marks as the Engineer may set for his own or the contractor's guidance shall be preserved by the contractor. If such stakes or marks are carelessly destroyed by the contractor, the cost of replacing such stakes may be charged against the contractor. The contractor may be required to set line and grade.

1.6.2. The contractor shall be responsible for making a request for line and grade at the Engineering Department at least 48 hours prior to beginning any work which may require line and grade. The line and grade will be required for all curb work, construction of new sidewalks and drives and replacement or resetting of existing sidewalks and curbs.

1.6.3. The contractor shall not commence work until such line and grade has been marked. He shall carefully work to the lines and grades using all stakes and marks furnished. Should any stakes or marks be moved or lost, or if any doubt exists in the contractor's mind about the correctness of any stake or mark he shall request the Engineer to replace or verify these points. He shall not proceed with the work until the replacement or verification has been made.

1.6.4. The contractor shall exercise extreme care not to damage, disturb or bury any town merestones which have been set at street corners or at angles in the street lines. If any merestone is disturbed, damaged or covered over, it shall be the duty of the contractor at his expense to correct these conditions, as directed by and subject to the supervision of the Engineer.

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1.7 URGENT WORK:

1.7.1. If, in his judgement, traffic conditions, the safety or convenience of the traveling public or the public interest require that the excavation work be performed as emergency work, the Director of Public Works shall have full power to order that a crew of men and adequate facilities be employed by the permittee up to 24 hours a day to the end that such excavation work may be completed as soon as possible.

1.8 EMERGENCY ACTION:

1.8.1. Nothing in these rules shall be construed to prevent the making of such excavations as may be necessary for the preservation of life or property or for the location of trouble in conduit or pipe, or for making necessary repairs, provided that the person making such excavation shall apply to the Engineer for such a permit on the first working day after such work is commenced.

1.8.2. The person engaged in emergency action shall notify the Engineer, Director, the Police Department, and the Fire Department at the start of the emergency work.

1.9 RELOCATION AND PROTECTION OF UTILITIES:

1.9.1. The permittee shall call the Connecticut Underground Utility Protection Plan (C.U.U.P.P.) (1-800-922-4455) a minimum of two working days prior to starting his excavation and shall give the assigned C.U.U.P.P. number to the Town of Vernon Engineering Inspector. The permittee must call to renew the number every 30 days for it to remain valid.

1.9.2. The permittee shall not interfere with any existing utility without the written consent of the Engineer and the owner of the utility. If it becomes necessary to relocate an existing utility, this shall be done by its owner and the cost of such work borne by the permittee. The permittee shall support and protect by timbers or otherwise all pipes, conduits, poles, wires, or other apparatus which may be in any way affected by the excavation work, and do everything necessary to support, sustain and protect them under, over, along or across such work. In case any said pipes, conduits, poles, wires or apparatus should be damaged, and for this purpose pipe casing or other encasement devices are to be considered as part of a substructure, they shall be repaired by the agency or person owning them and the expense of such repairs borne by the permittee.

1.9.2(Cont.) The permittee shall be responsible for any damage done to any public or private property by reason of the breaking of any water pipes, sewer, gas pipe, electric conduit or other utility.

1.10 PROTECTION OF ADJOINING PROPERTY:

1.10.1. The permittee shall at all times and at his own expense preserve and protect from injury any adjoining property by providing proper foundations and taking other measures suitable for the purpose. The permittee shall, at his own expense, shore up and protect all buildings, walls, fences or other property likely to be damaged during the progress of the excavation work and shall be responsible for all damage to public or private property or highways resulting from its failure to properly protect and carry out said work. The permittee shall not remove, even temporarily, any trees or shrubs which exist in planting strip areas without first obtaining the consent of the Tree Warden.

1.11 CONSTRUCTION MATERIALS:

1.11.1. Construction materials on the site shall be limited in quantity and space occupying area so as to not unduly hinder and block the use of the street.

1.12 CLEARANCE OF VITAL STRUCTURES:

1.12.1. The excavation work shall be performed and conducted so as not to interfere with access to fire hydrants, fire stations, fire escapes, water gates, underground vaults, catch basins and all other vital equipment as designated by the Director.

1.12.2. The permittee shall maintain all gutters free and unobstructed for the full depth of the adjacent curb and for at least one foot in width from the face of such curb at the gutter line. Catch basins shall be kept clear and serviceable.

1.12.3. The permittee shall make provisions to take care of all surplus water, muck, silt, or other run-off pumped from excavations and shall be responsible for any damage resulting from his failure to so provide.

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1.13 NOISE:

1.13.1. Each permittee shall conduct and carry out excavation work in such manner as to avoid unnecessary inconvenience and annoyance to the general public and occupants of neighboring property. Between the hours of 8:00 P.M. and 7:00 A.M. he shall not use, except with the express written permission of the Director or in case of an emergency as herein otherwise provided, any tool, appliance or equipment producing noise of sufficient volume to disturb the sleep or repose of occupants of the neighboring property.

1.14 TRENCHES:

1.14.1. The maximum length of open trench permissible at any time shall be in accordance with existing ordinances or regulations including OSHA regulations or as may be specified by the Engineer. No greater length shall be open for pavement removal, excavation, construction, backfilling, patching and all other operations without written permission of the Engineer.

1.15 EXCAVATED MATERIAL:

1.15.1. All material excavated from trenches or excavations shall be removed from the site and legally disposed of except in rare cases where material is suitable for part of the backfill, however, permission must be granted by the Engineer prior to placement of any such material.

1.16 DUST CONTROL AND CLEAN UP:

1.16.1. As the excavation work progresses, all streets shall be thoroughly cleaned of all rubbish, excess earth, rock and other debris. The permittee shall take necessary precautions to prevent and avoid dust and to keep the streets clean each day. All clean up operations shall be accomplished at the expense of the permittee and shall be carried out to the satisfaction of the Director.

1.17 PROMPT COMPLETION OF WORK:

1.17.1. After an excavation is commenced, the permittee shall prosecute with diligence and expedience all excavation work covered by the excavation permit and shall promptly complete such work and restore the street to its original condition or as near as may be, so as not to obstruct the street or travel thereon more than is reasonably necessary.

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1.18 MAINTENANCE AND PROTECTION OF VEHICULAR AND PEDESTRIAN TRAFFIC:

1.18.1. The Chief of Police shall prescribe all conditions for maintenance and protection of traffic for each project.

1.19 GENERAL CURB, WALK, DRIVEWAY AND AREAWAY REQUIREMENTS:

1.19.1. General Curb Requirements: Unless specifically ordered by the Engineer, no concrete curb or combined curb and gutter shall be repaired, recapped or reset. All defective sections shall be removed and replaced with new or used granite curb as herein specified.

1.19.2. General Sidewalk Walk Requirements: The sidewalk and any other paved area between the curb and street line shall rise from the outer edge (curb side) to inner edge at a rate of 3/8 inches to the foot. This requirement may be varied to meet special conditions only on order of the Engineer. All new sidewalk shall be monolithic concrete walk on approved foundation. If a portion of a sidewalk frontage has been replaced by the Town with monolithic concrete walk on satisfactory existing foundation due to curb repair or moving back of curb corners, etc., the abutting property owner may replace the balance of the walk with new monolithic concrete of required thickness on new foundation.

1.19.3. General Driveway Requirements: The minimum width of driveways shall be 13 1/2 feet between curb openings measured at gutter level, the maximum width shall be 30 feet without written permission of the Engineer. The island between two adjacent driveways shall be not less than 3 feet measured on the curb line without written permission of the Engineer. No driveway will be Constructed in any portion of the arc of any curb corner except with written permission of the Engineer. Bituminous concrete driveway ramps shall be constructed in conforming residential zones only and then with the written permission of the Engineer. All existing granite, bituminous concrete curb, concrete curb or combined curb and gutter shall be removed in the construction or reconstruction of bituminous concrete ramps. Curb cut for bituminous ramp shall be cut square.

1.19.3 (Cont.) The opening shall be 20 inches on each side wider than the proposed ramp at gutter line. A shoulder of bituminous concrete shall be constructed with the ramp 20 inches wide rolling down from the top of curb to the finished ramp grade at gutter line. New 8-inch cement concrete drive aprons may be installed against existing 8-inch thick reinforced cement concrete walk provided the walk is in good condition and true to line and grade and with the permission of the Engineer. Sidewalks converted to use as driveway ramps shall no longer be accepted. The existing walk and the new drive, ramp shall be doweled.

1.19.4. Areaway: Prior to repair of a sidewalk which is over or the covering of an areaway complete plans by a Professional Engineer shall be submitted to the Engineer for his review and approval. No work may be started until the Engineer has given written approval and a permit obtained.

1.19.5. Wheelchair Ramps: Wheelchair ramps when ordered constructed or repaired shall have a curb to curb opening of 14' with a clear opening between shoulders of 40". The header shall be flush with the gutter. The header shall have the same foundation and extend to same depth as the adjacent curb stones (min. 18" deep). The specification for concrete wheelchair ramps shall meet the same specifications as the 8" reinforced concrete driveway ramps.

SECTION 2.0

MATERIAL SPECIFICATIONS

2.1 VERTICAL GRANITE CURB:

2.1.1. All vertical granite curb supplied for use within a town street or on town property shall conform to the following specifications:

2.1.1.1. General: Curbstones shall be hard and durable granite of light color and uniform texture, neither stratified nor laminated. It shall be free from seams, cracks and evidence of weakening or disintegration and shall be of good smooth splitting appearance. Granite shall come from a quarry previously approved by the Engineer. Should the contractor request use of granite from a quarry not previously approved, he shall submit samples sufficiently in advance of need to allow the Engineer opportunity to judge the stone both as to quality and appearance. All curbstones for a given project shall come from one quarry and be all of one type. Granite when tested shall have a French coefficient of wear of not less than 16 or a Los Angeles percentage of wear of not more than 32. Test sample shall conform to the requirements of ASTM C-422.

2.1.1.2. Dimensions:

2.1.1.2.1. Straight curb shall be 6 inches by 18 inches, (or as ordered by the Engineer). Depth shall be nominal depth plus or minus 1 inch. Minimum length to be 6 feet (except for closures to be not less than 4 feet). Minimum width at bottom to be nominal width minus 1 inch for two thirds the length with an absolute minimum of minus 2 inches for the remaining one third.

2.1.1.2.2. All curbs to be set on radius 75 feet or less shall be 6 inches by 18 inches cut to arc with radian joints. Depth shall be 18 inches plus or minus 1 inch. Minimum length to be 4 feet, minimum width at bottom to be 5 inches for two thirds the length with an absolute minimum of 4 inches for the remaining one third.

2.1.1.2.3. Straight curb to be set on radius over 75 feet to 500 feet shall be 6 inches by 18 inches with ends trimmed so that face and top joint fits properly. Depth to be 18 inches plus or minus 1 inch, minimum length to be 4 feet, maximum length to be 6 feet. Minimum width at bottom to be 5 inches for two thirds the length with an absolute minimum of 4 inches for the remaining one third.

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2.1.1.3. Finish: The curbstone shall have a top surface free from wind and drill holes, it shall be sawed to an approximately true plane, and shall have no projections or depressions greater than 1/8 inch. The front and back arris lines shall be straight and true with no variation from a straight line greater than 1/8 inch. On the back surface there shall be no projection for 3 inches down which would fall outside a batter of 4 inches in 12 inches from the back arris line. The front face shall be at right angles to the plane of the top or battered not more than one inch in twelve inches, and shall be quarry split or sawn, free from drill holes in the exposed face. The front face shall have no projections greater than 3/4 of an inch or depression greater than 1/2 inch measured from the vertical plane of the face through the top arris line for a distance of 8 inches down from the top. For the remaining distance there shall be no projections or depressions greater than 1 inch measured in the same manner. The arris lines at the ends shall be pitched with no variation from the plane of the face greater than 1/8 inch. The ends of all stones shall be square with the planes of the top and face, and so finished that when the stones are placed end to end as closely as possible, no space more than 1/2 inch shall show in the joint for the full width of the top and down on the face for 8 inches. On curbstones having a length of 6 feet or more, the remainder of the end may break back not over 8 inches, on shorter curbstones, they shall not break back more than 6 inches. The bottom surface shall be sawn or quarry split to an approximately true plane. Half drill holes not larger than 1/4 inch radius will be permitted in the arris line of the back. Front arris line may be rounded to a radius not over 1/2 inch. If sawn, the curbstone shall be thoroughly cleaned of any iron rust or iron particles.

2.1.1.4. Used Curb: When ordered by the Engineer, the contractor may provide himself or be supplied by Public Works with suitable used curb salvaged from previous work. The used curb shall be in good condition and shall generally meet the above specifications for new curb. Each individual piece will be inspected and subject to the approval of the Engineer.

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2.2 CURB, JOINT SEALANT:

2.2.1 Joints between the curb stones or between the pieces of precast concrete curb shall be filled with a material equal to Sikaflex 1C polyurethane sealant. Mortar or grout will not be allowed.The sealant shall be a moisture-cured, one component, polyurethane-based elastomeric sealant and shall offer adhesion and elasticity from 0 to 100F temperature range. It shall resist fuel, mineral oil and dilute minerals. It shall be odorless and non-staining. The sealant shall be a non-sag grade and the color shall be limestone, unless another color is specified by the Engineer. It shall be purchased in cartridges so as to be applied with a caulking gun.

2.3 PORTLAND CEMENT CONCRETE:

2.3.1. All portland cement concrete supplied for use within a Town street or on Town property shall conform to the following specifications:

2.3.1.1.General Composition of Concrete Mix: All concrete used shall be proportioned by weight for one cubic yard as follows:

2.3.1.1.1. Sidewalk and Driveway Ramp mix

Class "F"

Cement	(7 sacks)	658 lbs.
Sand		1300 lbs.
1/2" crushed stone		720 lbs.
3/4" crushed stone		1080 lbs.
Water		34 gals.
Air		5-7 percent
Slump		3 inches (max.)
Strength (28-day)		4000 PSI (Min.)

The proportions listed above are based on the weight of cement and surface dry aggregates and on bulk specific gravity of 2.65 for sand with a fineness modulus of 2.70 and on trap rock with a specific gravity of 2.90. For aggregates having appreciable different specific gravities a fineness modulus appropriate corrections shall be made and the Engineer notified in writing.

2.3.1.1.1.1. Cement: Portland cement shall be Type II or IIA and shall comply with AASHO M-85. Type III or IIIA may not be used except as directed by the Engineer for special conditions. All cements must meet requirements of ASTM C-150. Should air-entraining cement be used, it must be capable of producing entrained air within the specified limits without air-entraining add mixtures.

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2.3.1.1.1.2. Water: Water for use in concrete shall be clean and free from objectionable impurities. In general water from water mains shall be used.

2.3.1.1.1.3. Fine Aggregate: The fine aggregrate shall be washed sand consisting of clean, hard, durable, uncoated particles of quartz rock, free from lumps of clay, soft or flaky material, loam or organic material or other injurious material. In no case shall sand containing frozen material be used. Fine aggregate shall contain not more than 3 percent of inorganic silt and clay by actual dry weight using AASHO Method T-11, and subjected to the colorimetric test shall not produce a color darker than Gardner Color Standard No. 11 using AASHO Method T-21. Fine aggregate shall be uniformly graded from coarse to fine and shall meet the following gradation requirements:

Square Mesh Sieves Total Percent Passing By Weight

3/4"	No.4	No.8	No.16	No.30	No.50	No.100
100	95-100	75-90	45-75	20-50	10-30	0-10

The above gradation represents the extreme limits of material passing the sieves. Not more than 40 percent shall be retained between any two consecutive sieves and the fineness modulus shall not be less than 2.30 nor more than 3.10. Fine aggregate from any one source having a variation in fineness modulus greater than .20 either way from the fineness modulus of the representative sample will be rejected. When tested with Sodium Sulphate solution for soundness, using AASHO Method T-104 fine aggregate shall not have lost more than 10 percent at the end of five cycles. To determine the effect of alternate freezing and thawing on the sand, tests will be made by proceeding with some of the stages of AASHO Method T-103. If after ten cycles of freezing and thawing between the ranges of -5F and 70F more than three (3) percent of the aggregate retained on the No. 50 sieve passes the No. 50 sieve, the material may be rejected.

2.3.1.1.1.4. Coarse Aggregate: Coarse aggregate shall be broken stone or gravel consisting of clean, hard, tough, durable fragments of rock of uniform quality throughout. It shall be free from soft, disintegrated pieces, mud, dirt, organic or other injurious material and shall not contain more than one percent of dust by weight. When tested with Sodium Sulphate solution for soundness, using AASHO MethodT-104 coarse aggregate shall not have lost more than 12 percent at the end of five cycles. When tested by means of the Los Angles Rattler, using AASHO Method T-96 coarse aggregate shall not have lost more than 40 percent. Coarse aggregate shall be

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Square Mesh Sieves Total Percent Passing By Weight

Nominal Size	1"	3/4"	5/8"	1/2"	3/8"	#4	#8
3/4"	100	30-100	-	10-40	0-20	0-5	-
1/2"	-	-	100	90-100	30-50	0-8	0-3

2.3.1.1.1.5. Air-Entraining Agent: The air-entraining agent used shall be of the vinsol resin type ("Darex" as manufactured by Dowey Almy Chemical Company or approved equal). The air-entraining agent shall be added to the mixing water prior to its addition to the mix, for non-air-entrained cement mixes only. Air-entraining agent may not be used with air-entrained cement.

2.3.1.1.1.6. Accelerator: When ordered by the Engineer, a calcium chloride solution (one pound of calcium chloride per quart of water) shall be added to the mix at the rate of one quart of solution per bag of cement as part of the mixing water.

2.3.1.1.1.7. Mixing and Delivery of Concrete: All cement concrete used shall be "Ready-Mixed Concrete". (Portland cement concrete manufactured for delivery to a purchaser in a plastic state and delivered to the job site suitable mixed for placing in the work.) Ready-Mixed concrete shall be either (1) mixed completely at a central mix plant and transported to the job in a truck mixer operating at agitator speed or (2) mixed competely in a truck mixer while in transit or at the point of delivery. Ready-mixed concrete shall be obtained from suppliers approved by the Engineer. Batching equipment, stationary mixes and truck mixers shall conform to the requirements of Article 4.01.03 (2) and Article 6.01.03 (1), as applicable, of Form 814, State of Connecticut, Department of Transportation Std. Specs. and be in good condition and operated as designated by the manufacturer. The concrete shall be discharged at the site of the work in a thoroughly mixed and uniform mass of the consistency and work-ability required without the use of additional mixing water. The slump of the concrete at and during discharge on the work shall be 3 inches.

uniformly graded from coarse to fine and shall meet the following requirements:

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As determined in accordance with AASHO T-119, discharge of the batch shall be complete within one hour of the addition of water to the mix. Cement delivered in outdoor temperatures lower than 40F shall be discharged at the work having a temperature not less than 60F nor greater than 90F. Every load of concrete delivered to the job site shall have a ticket clearly marked indicating the proportionment of the batch and stamped by a time clock indicating the time the batch was placed in the truck mixer. This ticket shall be presented to the inspector on the job prior to beginning discharge. Additional water for tempering will be added to the mix only on direction of the inspector. The concrete supplier shall guarantee proper frequency of delivery to allow conformance with placing requirements of these specifications. Failure to conform with all the requirements of this section will result in the rejection of the nonconforming load(s). Rejected loads that have been "doctored-up" will not be accepted. Repeated failure of a supplier to conform to these specifications will result in loss of approval by the Engineer as an approved source of material for Town construction.

2.3.1.2. Expansion Joint: Expansion joint shall be non-extruding premoulded joint material consisting of a cork granule base in a water-tight asphalt binder between two layers of asphalt impregnated paper ("Kupcork" as manufactured by Presstite-Keystone Engineering Products Company or "Kork-Pac" as manufactured by Servicised Products Company or approved equal.) The expansion joint material shall be 5" wide for 5" sidewalks and shall be 8" wide for 8" driveway ramps and 8" sidewalks.

2.3.1.3. Welded Wire Mesh Reinforcing: Wire mesh reinforcing shall be cold-drawn steel wire conforming to the requirements of AASHO M-32 and M-55 and shall be 6x6x8/8.

2.3.1.4. Dowels: Dowels shall be intermediate grade steel conforming to AASHO M-31. Dowels shall be smooth and shall be 5/8" diameter by 2' long.

2.3.1.5. Curing Materials: Water-proof paper shall be double sheet, asphalt cemented Kraft paper reinforced in both directions and conforming to the requirements of AASHO M139.

Polyethylene (i.e., Plastic) sheeting shall not be allowed.

2.3.1.5.1. In certain situations, the Engineer may allow, at the request of the contractor a 24-hour cure with kraft paper described above followed by a curing compound cure for the remaining 48 hours. The curing compound shall be a liquid membrane forming curing compound such as Demicon "Cure-Hard" or Sealight "Cure-Hard" with a Red or Green fugitive dye and shall meet the latest ASTM Specification C-156. The compound shall be applied after the kraft paper and forms have been removed, with an approved spray device. The sprayer shall deliver a fine spray with uniform coverage. The Contrator shall take special care to prevent settlement in the spray tank of the solids in the curing compound. Coverage rate shall be that recommended by the curing compound manufacturer. The contractor shall be responsible for maintaining the recommended coverage for 48 hours. This alternate method shall not relieve the contractor of any responsibilities described in these specifications.

2.4 BITUMINOUS CONCRETE:

2.4.1. All bituminous concrete supplied for use within a Town street or on Town property shall conform to the following specifications:

2.4.2. Bitumnous Concrete Paving Mixtures:

2.4.2.1. Premixed Bituminous Concrete Base - materials and construction methods shall conform to State of Connecticut Department of Transportation - Standard Specifications - Form 814-(1988) Section 4.06 description and construction methods and Article M.04, Class 4 for materials.

2.4.2.2. Bituminous Concrete Surface Course - materials and construction methods shall conform to State of Connecticut Department of Transportation - Standard Specifications - Form 814-(1988) - Section 4.06 for description and construction methods and Article M.04, Class 2 for materials.

2.4.2.3. Bituminous Concrete Surface - shall be Surface Course Grading II as specified in the State of Connecticut Department of Transportation - Standard Specifications - Form 814-(1988) - Article M.04 for materials; Section 4.06 for description, mixing plant, preparation of mixtures and transportation of mixtures.

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2.5 PROCESSED AGGREGATE:

2.5.1 INTENT: This specification describes processed trap rock.

2.5.2 REQUIREMENTS: The processed trap rock shall consist of a blend of crushed trap rock for the coarse aggregate and washed sand for the fine aggregate. The coarse aggregate shall be of two sizes: 2" and 1 1/4".

2 5.2.1. Coarse Aggregate: The coarse aggregate shall consist of crushed trap rock of the best quality, clean and free from dust, clay, loam, or other foreign material, and from foreign stone such as brownstone or shale. Excess quanitites of flat or elongated particles shall be cause for rejection. When tested for soundness with magnesium sulfate solution using AASHO method T-104, the coarse aggregate shall not have a loss at the end of five cycles of more than 10 percent. When tested for resistance to abrasion using AASHO method T-96, the crushed trap rock shall not have a loss of more than 40 percent.

2.5.2.2 Fine Aggregate: The fine aggregate shall be washed, sand consisting of clean, hard, durable, uncoated particles of quartz rock, free from lumps of clay, soft or flaky material, loam or organic material or other injurious material. In no case shall sand containing frozen material be used. Fine aggregate shall contain not more than 3 percent of inorganic silt and clay by actual dry weight using AASHO Method T-11, and subjected to the colormetric test shall not produce a color darker than Gardner Color Standard No. 11 using AASHO Method T-21. Fine aggregate shall be uniformly graded from coarse to fine and shall meet the following gradation requirements:

Square Mesh Sieves Total Percent Passing By Weight

3/4"	No.4	No.8	No.16	No.30	No.50	No.100
100	95-100	75-90	45-75	20-50	10-30	0-10

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2.6 CRUSHED TRAP ROCK

2.6.1. INTENT: This specification describes crushed trap rock.

2.6.2. KIND AND SIZE: The crushed trap rock shall be of five sizes as follows: 3/8", 1/2", 3/4", 1-1/4", and 2", all of which are standard commercial sizes as specified in the Conneticut State Highway Department Standard Specifications, Form 814.

2.6.3. PHYSICAL REQUIREMENTS: This material shall consist of sound, tough, durable particles of crushed trap rock, clean and free from dust, clay, loam, or other foreign stone such as brownstone or clay.

2.6.3.1. Sieve Analysis - The several sizes of crushed trap rock included on the specification shall meet the following gradation requirements (Connecticut State Highway Department Specification), when sampled and tested according to AASHO methods T-2 and T-27.

PERCENT PASSING BY WEIGHT

A.S.T.M. SQUARE MESH SIEVE SIZE	2"	1-1/4"	3/4"	1/2"	3/8"
2-1/2"	100				
2"	95-100				
1-1/2"	35-70	100			
1-1/4"	0-25	90-100			
1"	0-10	35-70	100		
3/4"		0-25	90-100	100	
1/2"		0-5	20-50	90-100	100
3/8"			0-20	30-50	90-100
#4			0-5	0-8	0-20
#8				0-3	0-5
#100					0-1.5

2.6.3.2. Soundness: When tested for soundness with Magnesium sulfate solution using AASHO method T-104 the coarse aggregate shall not have a loss at the end of five cycles of more than 10 percent.

2.6.3.3. Abrasion: When tested for resistance to abrasion using AASHO method T-96, the crushed trap rock shall not have a loss of more than 40 percent.

2.6.3.4. Shape: In each size of crushed trap rock the portion of material passing the sieve of that size and retained on the next smaller sieve (i.e., 1-1/4" size; material passing 1-1/2" sieve and retained on 1" sieve) shall contain not more than 40 percent by weight of flat and elongated pieces. For the purpose of this specification, a flat or elongated particle is defined as a particle having the greatest dimension equal to or greater than four times the minimum dimension. A particle shall be assumed to have three dimensions; all perpendicular to each other. The maximum length and the maximum thickness shall be the largest and thickness shall be the smallest of the three dimensions.

2.7 BANK RUN GRAVEL:

2.7.1. SCOPE: This specification will describe the type of common fill and bank run gravel required by the Town of Vernon Engineering Department.

2.7.2. COMMON FILL: Furnish and deliver fill as required and directed by the Engineer. The common fill shall consist of bank run sand or gravel, dirt or sub-soil; and free of clay, cinders, ash wood or other vegetation and demolition rubble, all shall pass a six (6) inch sieve, and at least 40 percent shall pass a quarter (1/4") sieve.

2.7.3. BANK RUN GRAVEL: Bank run gravel shall consist of sound, tough, durable particles of crushed or uncrushed gravel, free from soft, thin or elongated or laminated pieces and vegetable or other deletcrious substances. It shall meet the requirements for plasticity and soft particles indicated in Article M.02.06 of Form 814, STANDARD SPECIFICATIONS FOR ROADS, BRIDGES AND INCIDENTAL CONSTRUCTION: STATE OF CONNECTICUT, STATE HIGHWAY DEPARTMENT MANUAL.

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2.8 TOPSOIL:

2.8.1. The term topsoil used herein shall mean that portion of the soil profile defined technically as the "A" horizon by the Soil Science of America. It shall contain not less than three (3) nor more than twenty (20) percent organic matter as determined by loss-on-ignition of oven-dried samples drawn by the Engineer.

2.8.2. The following textural classes, as determined on the basis of material passing the 20-mesh sieve and subjected to partial mechanical analysis, shall be acceptable: Loamy sand, with not more than 80 percent sand; sandy loam; loam; sandy clay loam, with not more than 30 percent clay; silt loam, with not more than 60 percent silt.

2.8.3. The topsoil to be furnished by the Contractor shall be loose, friable, reasonably free of admixtures of subsoil, free from refuse, stumps, roots, brush, weeds, rocks, and stones 1-1/4 inch in over-all dimensions. The topsoil shall also be free from any material that will prevent the formation of a suitable seedbed or prevent seed germination and plant growth.

2.8.4. The Contractor shall notify the Engineer of the location from which he proposes to furnish topsoil to the project at least 15 calendar days prior to delivery.

2.8.5. The topsoil and its source shall be inspected and approved by the Engineer before the material is delivered to the project. Any material delivered to the project which does not meet specifications, or which has become mixed with undue amounts of subsoil during any operation at the source or during placing or spreading, will be rejected and shall be replaced by the Contractor with acceptable material.

2.9 INSPECTION, SAMPLING AND TESTING: All material shall be subject to inspection before delivery, by a member of the Engineering Department. The Engineer reserves the right to reject at any time material which he feels does not meet the specifications.

2.9.1. The Engineering Department will make or have made tests on the material to determine conformance to specifications. Samples will be taken from either the supplier's stock pile or from material already delivered as circumstances require.

2.9.2. Procedures for sampling and testing the material shall conform with the AASHO or ASTM methods listed herein using the latest revision existing at the date of the testing.

2.9.3. The supplier will be required to make available to the Engineering Department the proper equipment (screens at least 12 inches square and mechanical shaker) in good condition for making tests.

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3.1 VERTICAL GRANITE CURB:

3.1.1. Excavation: For the installation of new or used curb on new foundation the contractor shall excavate at least 18 inches wide but not more than 30 inches wide and exactly 36 inches below and parallel to the top of the new curb. Existing granite curb shall be carefully removed and stacked convenient for removal by Public Works if so ordered by the Engineer. When existing curb is to be reset, the contractor shall excavate on both sides of the curb, carefully remove the curb and store it adjacent to the trench, he shall be responsible for replacing any curbstones damaged by his negligence. When curbing is to be set or reset adjacent to existing street paving, the contractor shall excavate at least twelve (12) inches but not more than 18 inches in front of the curb line. The existing pavement surface and base shall be cut to a neat true line by sawing or cutting with a pavement breaker. The contractor shall excercise care in excavating so as not to break the pavement back of this line. Where the distance between the back of curb and the sidewalk is 12 inches or less, the contractor shall excavate by hand to avoid damaging the sidewalk. Trench for curb to be set on radius shall be exactly 36 inches below and parallel to the finished grade of the curb. Cement concrete walk laid against curbing to be reset shall be removed to the nearest longitudinal joint providing a neat clean line. Bituminous concrete paving behind the curb shall be cut to a neat true line on the edge of excavation. No excavated material shall be salvaged for reuse on the project except granite curb and suitable loam and only if ordered by the Engineer. Ledge rock encountered in the trench shall be removed to 6 inches below the bottom of curb by suitable air tools only.

3.1.2. Foundation: All foundation material under straight curb and for the bottom course of curb set on radius shall be processed trap rock conforming to Section 2.4 of these specifications. Foundation under straight curb shall be placed in 6-inch layers, be compacted with at least two passes of a motor driven vibratory compactor.

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Radius curb shall be set on a Portland Cement Concrete foundation conforming to Section 2.2 of these specifications. The bottom 6 inches of the trench shall be filled with processed trap rock and compacted with at least two passes of a motor driven vibratory compactor. The trench shall then be filled to the level of the bottom of the curbing with the above-specified mix in the very dry state. Curb may be held true to line and Concrete shall then be filled in on the sides (see backfill) producing a monolithic construction with the concrete below the curb. For the purpose of this specification all radius curbs with a radius of 75 feet or less shall be cut to specified radius and have a concrete foundation. For radii of 75 to 500 feet four-foot curb lengths shall be used, and set on the standard straight curb foundation.

3.1.3. Setting the Curb: All curb shall be handled with care to prevent damage, only canvas, nylon or fiber rope slings may be used. Chains or wire rope slings will not be allowed. Curb shall be stored as near to the proposed location as possible, it shall be placed with the top surface up, and suitable wood blocking placed at the third points of this section. Curb sections shall be placed with space between them sufficient to prevent damage by the contractor, and shall not be piled on top of each other. Curbstones shall not be stored on any paved surface unless authorized by the Engineer. The contractor shall be responsible for repair of any damage to the surface upon which curb has been stored. Straight curb sections shall be set on the completed foundation, wedged to line and settled to grade with a heavy wooden hand hammer. Steel tools of any kind shall not be used directly on the curb in setting it to line and grade. Curb sections shall be forced together so that no joint between adjacent curbstones shall be more than 1/2 inch. If required to achieve this fit, the contractor shall chip off any projections on the ends of the curbstone that prevent the required fit. If ordered by the Engineer, the contractor shall trim damaged ends of curbstones and cut closure pieces. Tolerance for the cut ends to be as specified for ends of new curb. A maximum open joint of 1/2 inch be left between curbstones and catch basin headers.

3.1.4. Trim and Cut Curbstones: This item shall include trimming damaged ends on existing curbstones and cutting existing curbstones to a shorter length, both trimming and cutting to produce a new end which is square with the planes of the top and face of the curb.

The ends shall be finished so that when stones are placed end to end as closely as possible, no space more than one-half inch wide shall show in the joint for the full width of the top and down the face for nine inches. The remainder of the joint may break back not more than four inches from the joint. The inspector may require the cut to be made with the stone in place in the ground.

When cutting a curb the section being removed must be suitably scored with a tracing chisel and hammer on face and top of curb, two to three holes will be drilled into face of curb along score mark and curb split with feather and wedges. The portion of curb cut off shall be kept to a minimum when cutting and trimming.

If in making a cut, the contractor through negligence damages the curb so as to make it unusable, the contractor shall furnish, at no cost to the town, a piece of suitable curb cut to proper length to replace the damaged curb.

3.1.5. Seal Joints: The joints of the curbing shall be filled with a polyurethane sealant as described in Section 2.2. The top of the joint and front of the joint shall be totally filled prior to repairing the pavement. The sealant shall be applied to below the top of pavement grade.

3.1.6. Backfill: Backfill shall be placed as soon as possible after the setting of the curb, care shall be excercised to prevent displacement of the curb. Backfill shall be placed equally on both sides of the curb to required distance below gutter grade. For straight curb backfill shall be processed trap rock as specified in Sections 2.5 or 2.6. Backfill shall be placed in 6-inch maximum layers and compacted with not less than two passes of a motor driven vibratory compactor. Behind the curb processed material backfill shall be placed and compacted to 5 inches below top of curb. In front of the curb where no concrete pavement base exists processed material backfill shall be placed and compacted to 3 1/2 inches below gutter grade. Where concrete pavement base exists, processed material backfill shall be placed and compacted to 11-1/2 inches below gutter grade.

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The concrete pavement base shall conform to requirements of concrete foundation as hereinbefore specified, it shall be 8" thick and placed to 3 1/2 inches below gutter grade. Processed material backfill behind the curb shall be placed only to 12 inches below top of curb until the concrete pavement base has been placed and hardened then the backfill shall be completed as required. For curb set to radius all backfill shall be cement concrete as hereinbefore specified for cement concrete foundation. Top of cement concrete backfill behind the curb shall be 6 inches below top of curb, in front top of concrete backfill shall be 3 1/2 inches below gutter grade. The edge of existing concrete pavement base shall be cleaned of all loose material and wet down just before placing concrete backfill. Top of concrete backfill shall receive a rough wood float finish.

3.1.7. Pavement, Walk and Seeding Repairs: The edge of the existing pavement surface shall be trimmed back 12 inches to a neat true line and shall be coated with hot asphalt. The face of the curb below gutter grade shall be coated with hot asphalt. The 2" of bituminous concrete binder shall be placed and compacted then 1-1/2" bituminous concrete wearing surface shall be placed and compacted. Bituminous mix shall be as specified in Section 2.4. The finished patch shall match the gutter grade and the top of the existing pavement. The patch and the existing pavement shall be sealed with hot asphalt. Concrete sidewalk behind the curb will be replaced as specified in Section 3.2 of these specifications. Bituminous paving behind the curb will be replaced as specified in Section 3.4 of these specifications. Where there is no walk or paving directly behind the curb, the top four inches of the trench shall be filled with new loam or existing loam. The surface shall be smoothly graded to match the existing ground; seed shall be evenly spread at the rate of 5 pounds per 1000 square feet and raked in and the surface lightly tamped. The contractor should take notice that the summer months are not good for grass growing and that he is responsible for a good stand of grass during the next growing season.

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3.2 5-INCH PORTLAND CEMENT CONRETE SIDEWALK:

3.2.1. Excavation: All proposed concrete walks shall be excavated 14 inches below and parallel to the finished grade of the new walk. Excavation shall extend 3 inches minimum and 6 inches maximum outside the edges of the proposed walk. Existing flagstone or concrete walk shall be removed, as part of this work. Ledge rock encountered within 12 inches of the finished walk grade shall be removed to 12 inches below finished grade. All removal shall be by suitable air tools only. After completion of excavation and prior to placing of foundation material, the sub-grade shall be compacted by at least two passes of a motor driven vibratory compactor. Should the sub-grade appear soft and yielding, this material shall be removed to firm ground, as ordered by the Engineer. The sub-grade, if stable, shall then be recompacted as hereinbefore specified. No excavated material shall be salvaged for reuse on the project except suitable loam and only if ordered by the Engineer. No broken flagstone or concrete shall be used in the foundation.

3.2.2. Foundation: All foundation material under cement concrete walk shall be processed trap rock conforming to Section 2.5 of these specifications. The processed material shall be placed in 6-inch layers the full width of the excavation. Each course shall be compacted to the satisfaction of the Engineer, with at least two passes of a motor driven vibratory compactor. Additional fine material shall be added to the top course to fill any voids that may have developed during compaction and to bring the completed foundation to true line and cross section 5 inches below and parallel to the finished grade of the walk.

3.2.3. Forms: Forms shall be of metal or wood, straight, free from warp and of sufficient strength to resist springing from the pressure of the concrete. If of wood they shall be of 2-inch by 6-inch smooth surfaced plank except that at sharp curves thinner material may be used. If of metal, they shall be of approved section and shall have a flat surface on the top. Forms shall be of a depth equal to the depth of the walk. Forms shall be securely staked, braced and held firmly to the required line and grade. Special care shall be taken to maintain the proper shape of all curves. Forms shall remain in place for 24 hours after placement of concrete. No stakes or bracing shall project above the top of the form. Forms shall be sufficiently tight to prevent leakage of mortar. All forms shall be cleaned and oiled before concrete is placed against them.

Sheet metal templets 1/4 inch thick of the full depth and width of the walk shall be placed at every expansion joint or as ordered by the Engineer. If concrete is placed in alternate sections these templates shall remain in place until concrete has been placed on both sides of the templates. As soon as the concrete has obtained its initial set the template shall be removed. For walks over 6 feet wide suitable longitutinal screed supports shall be used, so that maximum distance between screed supports and form shall not exceed 6 feet. They shall be set to and firmly held at correct grade, and removed prior to final finishing.

3.2.4. Placing of Concrete: The contractor shall give the Engineering Department a 24-hour notice before placing concrete. All dowels, expansion joint and other embedded material items shall be in place and all necessary placing and finishing tools and all curing and protection materials shall be on the job prior to commencement of concreting. Before the concrete is placed, the sub-grade shall be thoroughly dampened so that it is moist throughout, but without puddles of water. Concrete shall be placed as near to its final position as practicable, and precautions shall be taken not to overwork the concrete while it is still plastic. The concrete shall be thoroughly spaced along the forms or screeds. The concrete shall be placed in one 5-inch thick course and struck off as hereinafter specified to the required graded cross section. The top shall be struck of by use of a suitable screed resting on the forms or screed support to the required grade and cross section. All concrete mixes shall conform to Section 2.3 of these specifications.

3.2.5. Finishing: No finishing operation shall be performed while free water is present, finishing operations shall be delayed until all bled water and water sheen has left the surface and the concrete has started to set. The practice of dusting the surface with cement to promote drying will not be permitted. After water sheen has disappeared, all exposed walk edges and edges on each side of expansion joints shall be finished with a 1/4-inch radius edging tool. Transverse Dummy joints shall be formed by cutting a slot in the concrete one inch deep. The slot may be cut by a one inch deep T-bar forced into the fresh concrete or by a one inch bit jointer held against a straight edge. After the concrete has partly hardened the joint shall be edged with a jointer have a one inch bit and 1/4 inch fillets, held against a straight edge to make a clean straight joint. All other dummy joints in the walk shall be treated as above specified for transverse dummy joints.

All completed dummy joints shall be one inch deep. After edging and jointing operations, the surface shall be floated with a wood float. In very warm weather care shall be taken to prevent final set by shading and wetting until all finishing operation have been performed. If necessary, all tooled joints and edges shall be rerun after floating to maintain uniformity. After floating the surface shall be brushed by drawing a soft bristled push broom with a long handle over the surface of the concrete to produce a non-slip surface. A rain spattered finish will not be acceptable. Forms shall not be stripped for at least 24 hours after completion of finishing. Care shall be taken not to damage the green concrete during stripping of forms.

3.2.6. Joints: Transverse dummy joints shall be constructed at a longitudinal spacing equal to the width of the walk but not over five feet apart or to match adjoining walk. Transverse expansion joints shall be constructed to replace every third dummy joint and at change of walk thickness. Transverse expansion joints shall be 1/2 inch thick by 5 inches deep premolded joint material as specified in Section 2.3 of these specifications, and shall have 5/8 inch round by 24 inches long dowels spaced 2 feet center to center but not more than 12 inches from the edges of the walk. One end of each dowel shall be set in a 12-inch long plastic sleeve, or dipped into a lubricant grease to prevent concrete from adhering to the dowel. (5/8 inch ID plastic pipe may be used for this purpose.) Deformed reinforcing bars will not be allowed. Expansion joints, 1/2 inch by 5 inches as hereinbefore specified, shall be used between the walk being constructed and existing concrete walks, entrance walks, building foundations, retaining walls, light pole bases, vaults, manholes and all similar structures. Utility poles, hydrants, fire alarm boxes, gate boxes and similar installations located in the walk area shall be separated from the main walk by dummy joint or expansion joints located within 12 inches of any structure in the walk.

3.2.6.1. When the sidewalk is laid against the curb, a longitudinal expansion joint shall be constructed 2 feet back of the face and parallel to the curb where ordered by the Engineer. The expansion joint shall be 1/2 inch thick by 5 inches deep premoulded joint material as specified in Section 2.3 of these specifications, and shall have 5/8 inch round by 24 inches long dowels spaced 24 inches on center. One end of each dowel shall be set (12 inches long) as specified above. The above longitudinal jointshall be constructed for new walk, along a whole property frontage or between driveways but not on repair work. For repair work all joints shall be similar in construction and pattern to the joints in the adjacent existing walk. Concrete at longitudinal expansion joints shall be placed in two separate pours. First the sidewalk shall be poured and then the filler portions outside shall be placed. With the written permission of the Engineer, the contractor may, provided he has a definite workable method of holding the expansion joint to correct line and grade until completion of the work, place the concrete on both sides of the joint at the same time. A sidewalk less than 6 feet wide laid against the curb will not require a longitudinal expansion joint.

3.2.6.2. Where sidewalk is constructed against radius curb and it is not practical to install expansion material 2 feet back of the curb, then 1/4 inch expansion material will be allowed along the back of the curb.

3.2.6.3. At locations of a Town tree, the normal transverse dummy joint will not be used. For two normal joint spacings on either side of the tree, the joint shall be formed 1/2 inch wide and 5 inches deep. This joint shall be filled with sand upon completion of the walk. If he so desires, the contractor may install 1/2 inch by 5-inch premoulded joint material at the time of pouring to replace the 1/2 inch open joints.

3.2.7. Curing: Immediately following the final finishing and as soon as possible without maring the surface, the concrete shall be covered with water-proof paper conforming to Section 2.3 of these specifications. The water-proof paper shall extend at least 12 inches beyond the edge of the walk and, if required, shall be lapped a minimum of 6 inches. The waterproof paper shall be held down on all edges and lapped by continuous wood planks or piles of sand. Use of rocks or broken concrete will not be permitted. At the end of at least 72 hours paper shall be removed.

3.2.8. Cold Weather Concrete and Protection: No cement concrete shall be placed when the air temperature is 32F or below. Concrete may be placed when the air temperature is 33F to 40F only when suitable protective measures are taken. The following measures to be taken are the minimum required but not necessarily all the measures that may be required by the Engineer. Mixing water and aggregate shall be heated to provide mixed concrete at the job site having a temperature not less than 60F nor greater than 90F. An accelerator as hereinbefore specified shall be added. The sub-grade shall not be frozen, having been constructed with non-frozen materials and protected from freezing, snow or rain by a suitable cover or insulation. The completed concrete shall be maintained at 55F for four days. It shall be covered with water-proof paper as specified under "curing" in this Section, then a minimum of 6 inches of loose hay and a complete covering of water-proof paper securely fastened down on the edges and lapped. This protection shall be provided for a minimum of 4 days after the day the concrete was poured. Should the concrete be placed when the air temperature is over 40F, but temperatures may in the opinion of the Engineer, go below 35F during the 4-day period the contractor shall provide extra covering as specified above.

3.2.9. Backfill and Seeding Repairs: Upon completion the walk and stripping the forms the edges of the walk shall be backfilled with new loam or if acceptable,existing loam. The surface shall be smoothly graded to match the walk and the existing ground seed shall be evenly spread at the rate of 5 lbs. per 1000 sq. feet and raked in and the surface lightly tamped. The contractor should take note that the summer months are not good for grass growing and that he is responsible for a good stand of grass during the next growing season. Bituminous paving to be repaired or constructed adjacent to the walk shall conform to Section 3.4 of these specifications.

SECTION 3.0

CONSTRUCTION SPECIFICATIONS

3.3 8-INCH REINFORCED PORTLAND CEMENT CONCRETE WALK AND DRIVEWAY APRON:

3.3.1. The contractor shall construct 8-inch reinforced portland cement concrete walk or driveway apron as follows:

3.3.1.1. Construction of 8-inch concrete walk and driveway shall conform to all provisions of Section 3.2, 5-inch concrete walk except as follows:

3.3.1.1.1. Excavation: Excavation shall be 17 inches below and parallel to finished grade, and the maximum depth of removal of soft yielding material shall be 32 inches deep. Excavation of header for driveway shall be 36 inches below finished shoulder grade, 18 inches minimum and 30 inches maximum wide. The excavation shall be centered on the proposed header. Cutting and removal of the existing curb, combined curb and gutter, sidewalk or driveway shall be part of this excavation. Removal of existing street paving and base shall be specified in Section 3.1.

3.3.1.1.2 Foundation: Completed foundation shall be 8 inches below and parallel to finished grade. Foundation and backfill of header shall conform to requirements for straight curb as specified in Section 3.1.

3.3.1.1.3. Forms: Forms shall be 8 inches deep minimum. A standard 2" x 8" will not be allowed. Forms for header shall be wood, 2" x 12" mortar tight and securely braced. Provided the inside face of the foundation is reasonably straight and true a form will not be required.

3.3.1.1.4. Wire Mesh Reinforcing: Wire mesh reinforcing shall be welded steel, No. 8 wire spaced 6 inches by 6 inches both ways as specified in Section 2.3. All 8 inch concrete walks and drives shall be reinforced. The mesh shall be placed 2 inches above top of gravel foundation grade and all adjacent sections of mesh shall be lapped 8 inches and tied together with wire spaced not over 24 inches on centers to prevent displacement. The concrete shall be struck off to a reasonably true grade prior to placing the wire mesh. Wire mesh, if supplied in rolls, shall be cut to the proper size and flattened out prior to placement in the concrete. Wire mesh reinforcing shall be bent into the header 12 inches below the finished grade at the gutter and 2 inches inside the back face of the header.

3.3.1.1.5. Placing of Concrete: Concrete in the header shall be placed at the same time as the concrete in the driveway apron.

3.3.1.1.6. Joints: Transverse and longitudinal dummy joints one inch deep shall be placed in the surface of the driveway apron as shown on the typical detail plan. Transverse doweled expansion joints shall be placed in the 8-inch walk. Transverse doweled expansion joints shall be placed between all 8-inch walk or 8-inch drive and 5-inch walk. Expansion joint material 1/2 inch thick by the depth at the curb shall be placed between the drive shoulder and the existing curb.

3.3.1.1.7. Backfill, Pavement and Seeding Repairs: Street paving in front of the driveway shall be repaired as specified in Section 3.1 of these specifications.

3.4 BITUMINOUS CONCRETE PAVING ADJACENT TO SIDEWALKS:

3.4.1. Excavation: Excavation for bituminous paving between curb and walk on new foundation as determined by the Engineer, shall be 11 inches below and parallel to the finished grade, and shall extend a minimum of 3 inches beyond any outside edge. After completion of excavation for all bituminous paving and prior to placing of foundation material the sub-grade shall be compacted with at least two passes of a motor driven vibratory compactor. No excavated material shall be salvaged for reuse on the project except suitable loam and only if ordered by the Engineer. No broken flagstone, cement concrete, curbing or bituminous material shall be used in the foundation.

3.4.2. Foundation: All foundation under bituminous concrete paving shall be processed aggregate rock conforming to Section 2.5 of these specifications. The processed material shall be placed in 6-inch layers the full width of the excavation. Each course shall be compacted to the satisfaction of the Engineer, with at least three passes of a motor driven vibratory compactor. (Water shall be added to each course as required for proper compaction.) The completed foundation shall be true to line and cross section, 3 inches below for ramps and 2 inches below for other bituminous paving and parallel to finished grade. The trench resulting from curb removal shall be backfilled with processed material as specified in Section 3.1.

3.4.3. Laying the Bituminous Mix: All bituminous concrete mix shall conform to the requirements of Section 2.4 of these specifications.

3.4.3(Cont.) Bituminous concrete paving shall be constructed in one course, 2 inches compacted thickness of walk and drive mix. Forms will not be required. The edge of existing bituminous paving will be cut back 6 inches to a neat, true line. The edge of all existing cement concrete, bituminous paving and curbing abutting the new paving shall be painted with a coat of hot asphalt, just before placing the new paving. The mixture shall be laid only when the foundation is dry, the air temperature is at least 50F in the shade and when weather conditions are, in the opinion of the Engineer, suitable for the work intended. No bituminous concrete mix shall be placed between December 15th and April 15th without written permission of the Engineer. The mixture shall be distributed into place and spread uniform loose layer of such depth to give the required thickness after compaction. Compaction of each course shall be by a roller weighing not less than one ton, and by use of hand tamps on edges and areas inaccessible to the roller. The contractor shall have sufficient shovels, rakes, lutes, brooms, all steel tamps (min. weight 36 lbs.) and smoothing irons. Joints in the bituminous paving shall be kept to a minimum, should any be required the previously placed paving shall be cut back 3 inches to a neat true line and the joint painted with a coat of hot asphalt. The finished bituminous paving shall match the existing curb, walk or drive, it is laid against. The edge of the new paving against existing curb, walk or driveway shall be sealed with hot asphalt.

3.4.4. Pavement and Seeding Repairs: Street paving repairs and seeding repairs shall be as specified in Section 3.1.7 of these specifications.

3.5 MISCELLANEOUS CONSTRUCTION:

3.5.1. Relaying Flagstone or Cement Concrete Walk: When ordered by the Engineer, the contractor shall relay existing flagstone or cement concrete walk as follows:

Both sides of the walk shall be excavated a minimum of 3 inches wide and for the full depth of the walk. The individual slabs shall be raised sufficiently to allow removal or addition of foundation material as required. Care shall be taken not to damage the slab. Additional foundation material shall be new clean sand firmly tamped in. The relayed walk shall be to correct line and grade, firmly bedded with no voids under the slabs. Areas adjacent to relayed slabs shall be repaired as specified in Section 2.3 of these specifications. The contractor shall be responsible for resetting existing abutting slabs that do not meet the correct line and grade of a new walk that he has constructed, to eliminate any "stub toes".

3.5.2. Patching Walks, Driveways and Curbing: When ordered by the Engineer or engaged by the abutting property owner, the contractor shall patch existing walks, driveways and curbs as follows:

3.5.2.1. The patch shall be either cement mortar or bituminous material as ordered by the Engineer or the property owner. The area of the patch shall be roughened and cleaned of all loose and foreign material, the edges shall be trimmed to a reasonably vertical face. Cement mortar patch material shall be a mixture of cement, washed sand and water. Areas to be patched with cement mortar shall be coated with a bonding agent or with a mixture of cement and water just prior to placing patch material. The mortar shall then be placed and struck off to a smooth surface level with the surrounding area. As soon as the mortar has set, water proof kraft paper shall be placed over the areas for 72 hours. Bituminous patch material shall be a mixture of emulsified asphalt, sand and cement; commercial patching mixtures such as Collins Mix may be used. The area to be patched with bituminous material shall be lightly tacked with emulsified asphalt just prior to placing of patch material. The bituminous material shall be placed and struck off level with the surrounding area. The surface shall be coated with fine clean sand. All traffic shall be kept off patched areas for at least 48 hours. Property owners or other agent making patches on abutting walks or drives as hereinbefore allowed shall comply with all provisions of this Section.

3.6 STREET EXCAVATIONS:

3.6.1. Breaking through Pavement:

3.6.1.1. The use of hydrohammers or heavy duty pavement breakers for breaking pavement is prohibited on all streets unless written permission is granted by the Engineer. In general, the use of hydrohammers or heavy duty pavement breakers is to be very restricted.

3.6.1.2. Approved cutting of bituminous pavement surface ahead of excavation is required to confine pavement damage to the limits of the trench.

3.6.1.3. Sections of sidewalks shall be removed to the nearest scoreline or approved saw cut edge.

3.6.1.4. Unstable pavement shall be removed over cave-outs and over breaks and the sub-grade shall be treated as the main trench.

3.6.1.5. Where previous cuts have been made adjacent to the new trench or excavation, extra care shall be taken to prevent the opening of existing joints and the settling of the pavement. Any and all damage to the existing pavement adjacent to the excavation, including existing patches, shall be repaired by the last person to excavate and at no cost to the town.

3.6.1.6. Pavement edges shall be trimmed to a vertical face and neatly aligned with the center line of the trench. Cut-outs outside of the trench lines must be normal or parallel to the trench line.

3.6.1.7. Excavations shall be made in open cut and no tunneling will be allowed except by special permission of the Engineer. Trenches and excavations shall be braced and sheeted as required by OSHA regulations.

3.6.2. Backfilling: Excavated material shall not be used for backfill unless it consists of sand or gravel and the permittee has approval of the Engineer. Broken pavement, large stones, clay, roots, frozen material and other debris shall not be used in the backfill. Backfill material shall consist of bank run gravel, or processed aggregate as approved by the Engineer and meeting the specifications of Section 2.5 PROCESSED AGGREGATE, 2.7 BANK RUN GRAVEL of these rules and specifications. Bank run gravel may be used from the bottom of the trench to a point nine and a half (9 1/2) inches below the surface of the pavement. Only 2" processed aggregate is to be used in the top nine and a half (9 1/2) inches of the excavation. Backfill shall be placed in layers with a maximum uncompacted dimension of six (6) inches. All backfill material shall be compacted to a minimum of 95% of the dry density achieved by the AASHO T-180 D, as modified by Section 2.14 of the State of Connecticut, Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction prior to the installation of permanent paving. The Town of Vernon reserves the authority to require that compaction tests certified by an independent laboratory, acceptable to the Town, be made at the expense of the permittee. No puddling will be allowed without written permission of the Engineer.

SECTION 3.0

CONSTRUCTION SPECIFICATIONS

3.6.3. Restoration of Pavement:

3.6.3.1. Temporary Surface Restoration:

A temporary surfacing of two inches of bituminous concrete shall be placed on the backfill material for a wearing surface. Temporary paving material shall be a "hot mix", except that the permittee may use with the written approval of the Engineer"cold mix" when "hot mix" is unavailable because the asphalt plants are shut down. Temporary paving of cuts shall be maintained in a safe and satisfactory condition by the permittee at all times. The failure of the permittee in doing this shall call for the revoking of his license.

SECTION 3.0

CONSTRUCTION SPECIFICATIONS

3.6.3.2. Permanent Surface Restoration:

In permanent pavement restoration, paving shall be replaced with like pavement or as follows: See Plate #6.

Type	Restoration
Finished Concrete	9" thick finished concrete reinforced with wire or rods equal to original reinforcing.
Concrete Base	8" thick concrete base reinforced with wire or rods equal to original reinforcing.
Gravel Base	6" processed gravel on top of 8" bank run gravel (compacted)
Stone-Filled Sheet Asphalt	3 1/2" Bituminous Concrete
Sheet Asphalt	3 1/2" Bituminous Concrete
Bituminous Concrete on Concrete Base	3 1/2" Bituminous Concrete
Bituminous Concrete on Gravel Base	3 1/2" Bituminous Concrete
Penetration Macadam	3 1/2" Bituminous Concrete
Macadam	3 1/2" Bituminous Concrete

All bituminous pavement except macadam patches shall be laid in two courses.

3.6.3.2.1. The surface course shall be 1-1/2 inches thick when compacted. The remaining thickness shall be binder course and shall be two inches thick when compacted.

3.6.3.3. Restoration of paving cuts shall be made after the temporary paving has been in place for thirty days and within a three-month period except during winter months.

3.6.3.4. All restoration shall be made by a paving contractor familiar and experienced with paving practices in the Town of Vernon who has sufficient proper equipment and is approved by the Engineer.

3.6.3.5. Restoration of cuts is to be made during the months of April through November 15th so as to have a minimum of unrestored cuts during the winter months.

3.6.3.6. All cuts made during the winter season shall be permanently restored within one month of the start of the next paving season or the contractors license shall be suspended until such repairs are made.

3.6.3.7. When there is three feet or less between a curb and the edge of the trench or excavation nearest the curb, the restoration of trench or excavation pavement shall be extended to the curb.

3.6.3.8. Methods: The current standard paving specifications of the Engineering Department of the Town of Vernon shall be followed insofar as they apply.

3.6.3.8.1. In pavements with concrete base, the original cut shall be cut back at least one foot onto undisturbed sub-grade on each side prior to replacing concrete. If the pavement has steel reinforcement, the reinforcement shall be carried through the cut as directed with at least 12 inches of lap. The top surface shall be cut back straight and square for at least six inches beyond the new concrete base. The top of the concrete patch shall be at the same level as the adjoing concrete.

3.6.3.8.2. In pavements without concrete base, the pavement shall be cut to neat straight lines not less than twelve (12) inches on each side from the edges of the original trench.

3.6.3.8.3. The edges of the pavement shall be clean and coated with hot asphalt cement before each course of the hot mix bituminous concrete (see Section 2.3 of these rules and specifications) is placed. The bottom layer shall be thoroughly compacted using all steel tamps. The top layer shall be thoroughly compacted to a smooth surface matching existing pavement and using all steel tamps and/or a motor driven vibratory compactor with water dispersing equipment designed for use on bituminous concete and/or a tandem ten-ton roller, as required by the Engineer. The joint between the patch and the existing pavement shall be sealed with hot asphalt. See Plate #6.

3.6.3.8.4. Restoration of cuts shall be scheduled so as to complete them in minimum time and minimum interference with traffic. If there is a delay in obtaining the wearing surface, the binder shall be placed, barricades removed temporarily and traffic allowed to run on the binder course.

DRIVEWAY SCORING PATTERN

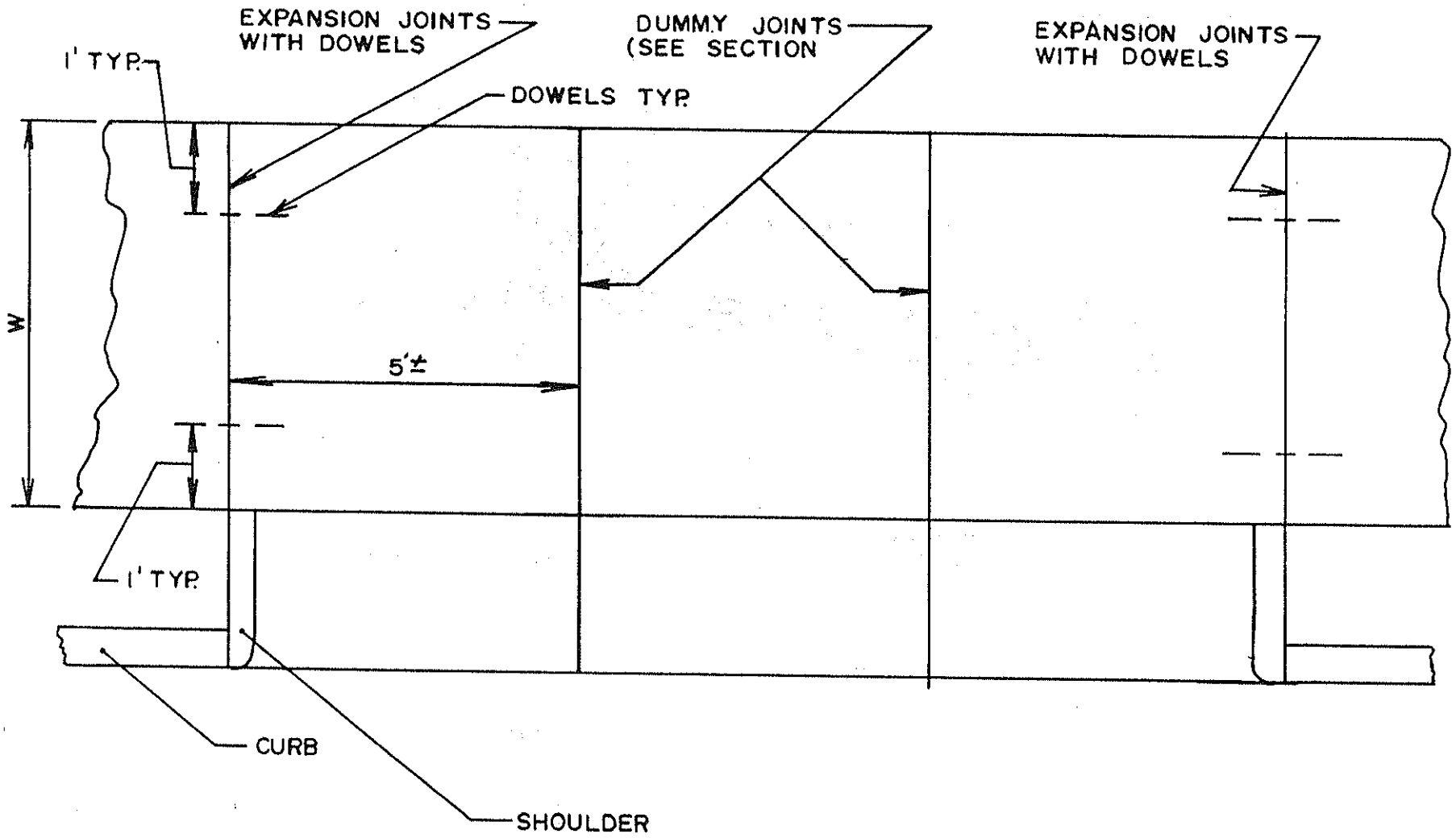


PLATE NO. 1

DRIVEWAY CROSS SECTION

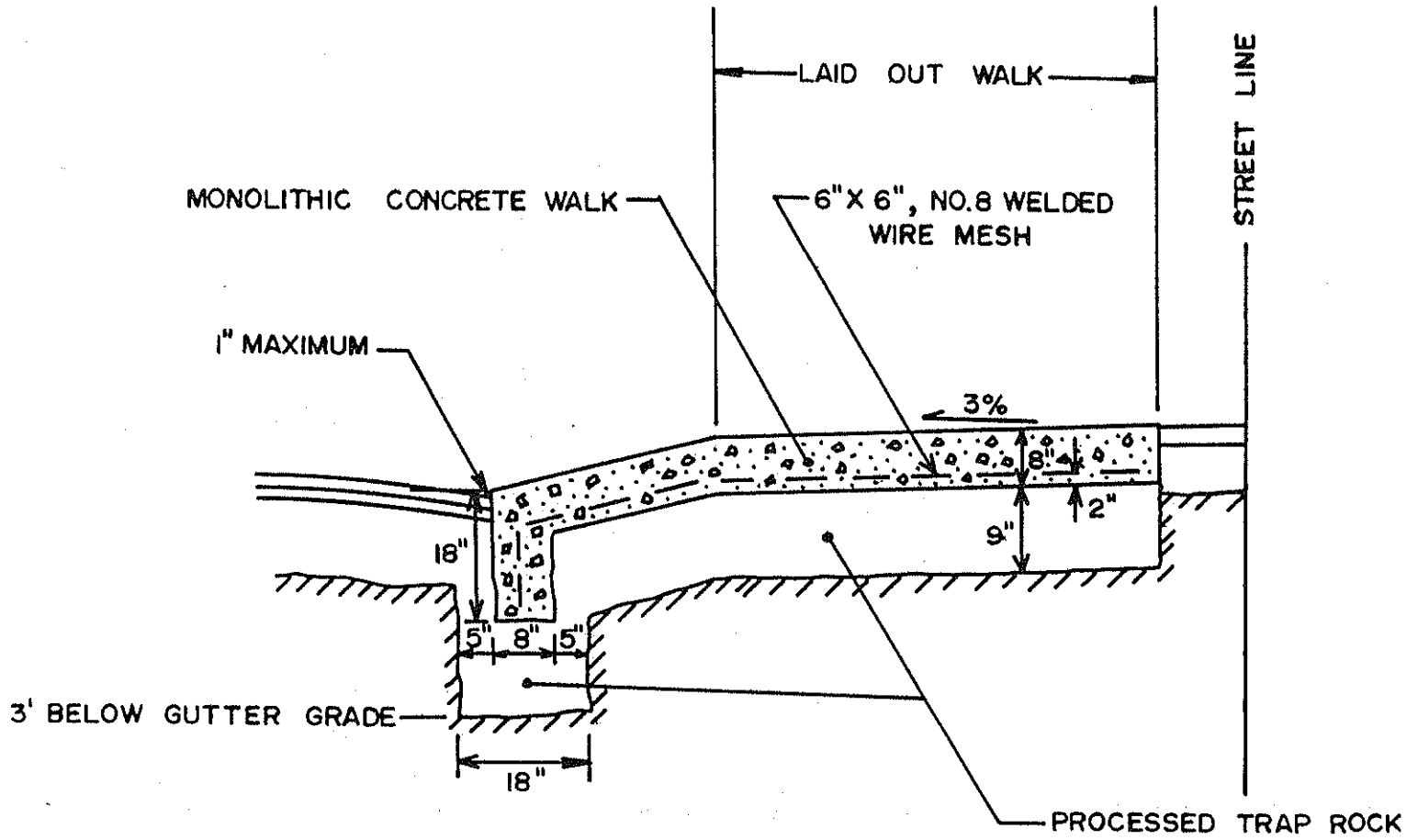


PLATE NO. 2

WALK CROSS-SECTION

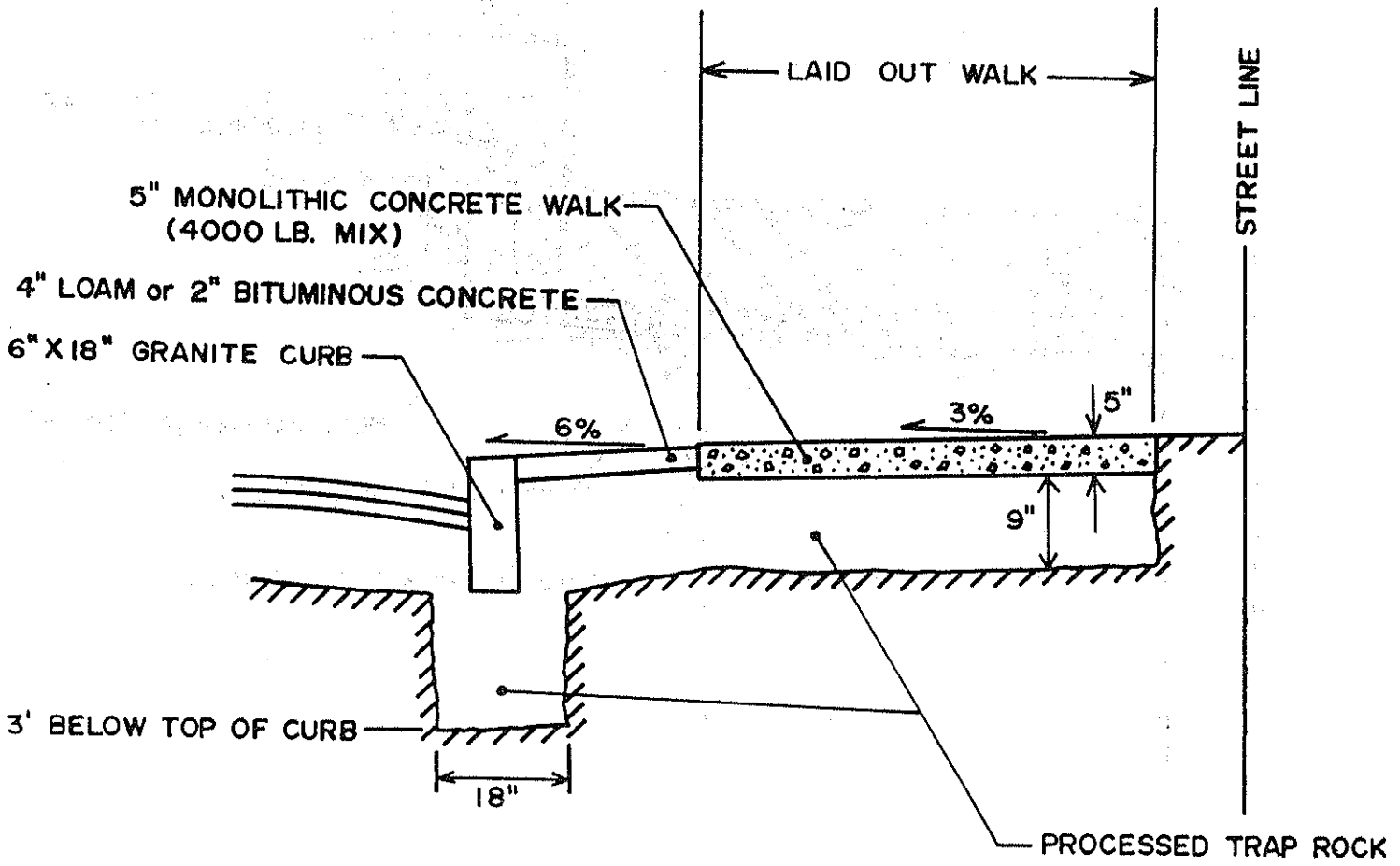


PLATE NO. 3

RADIUS WALK CROSS-SECTION

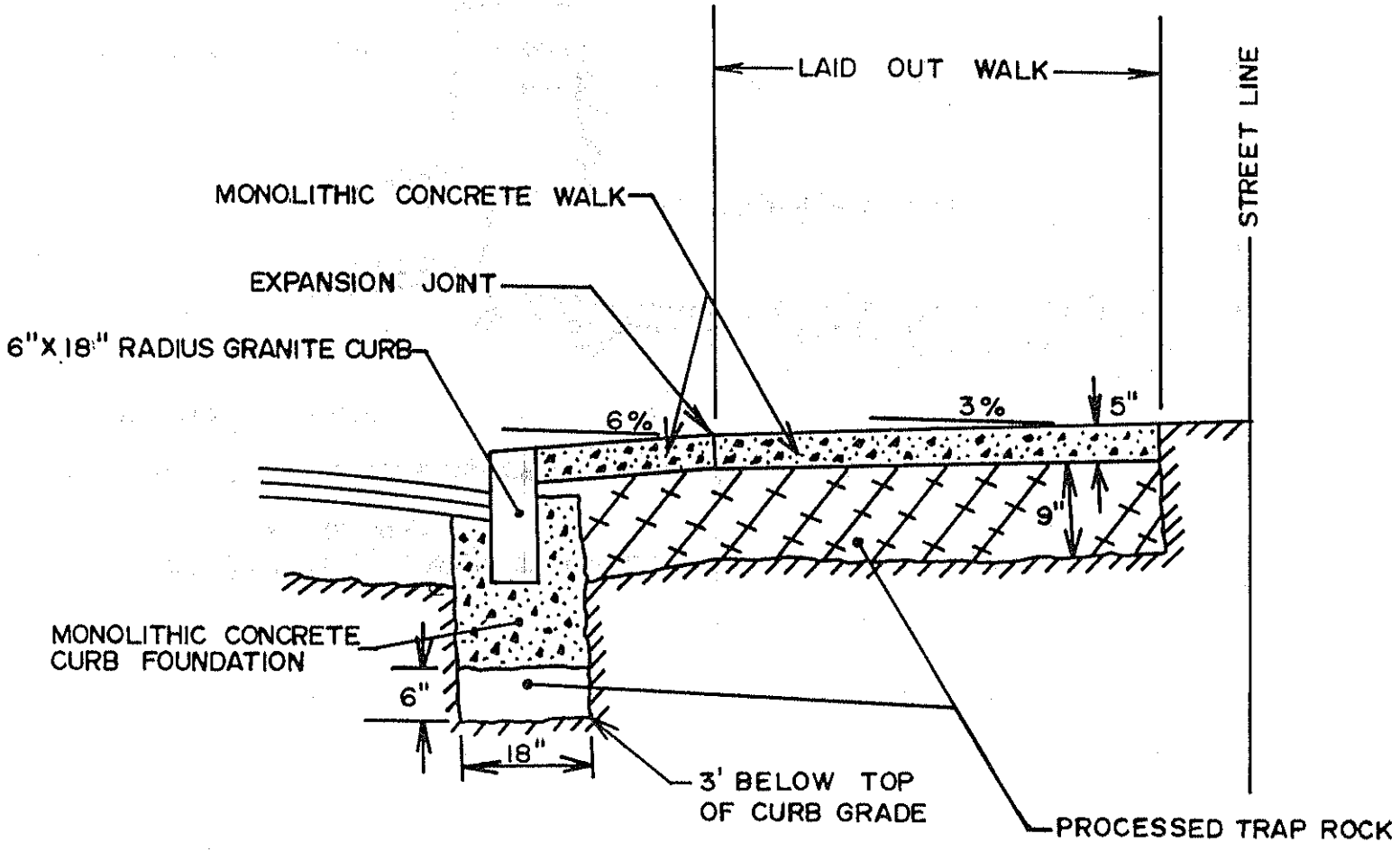
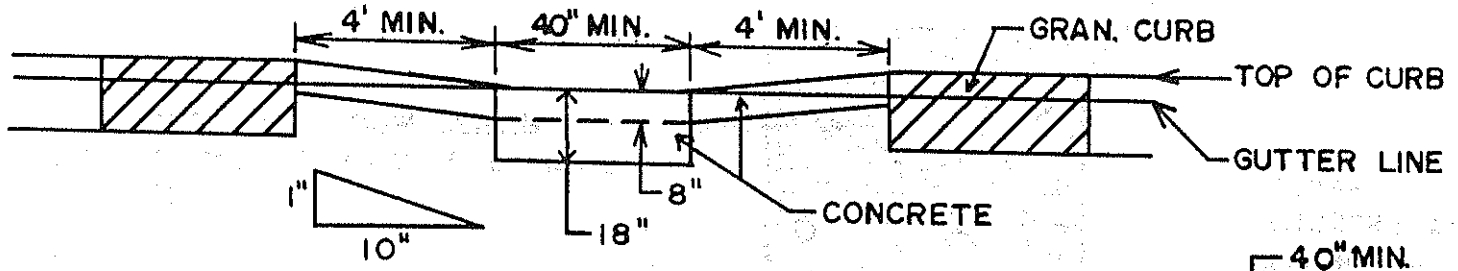
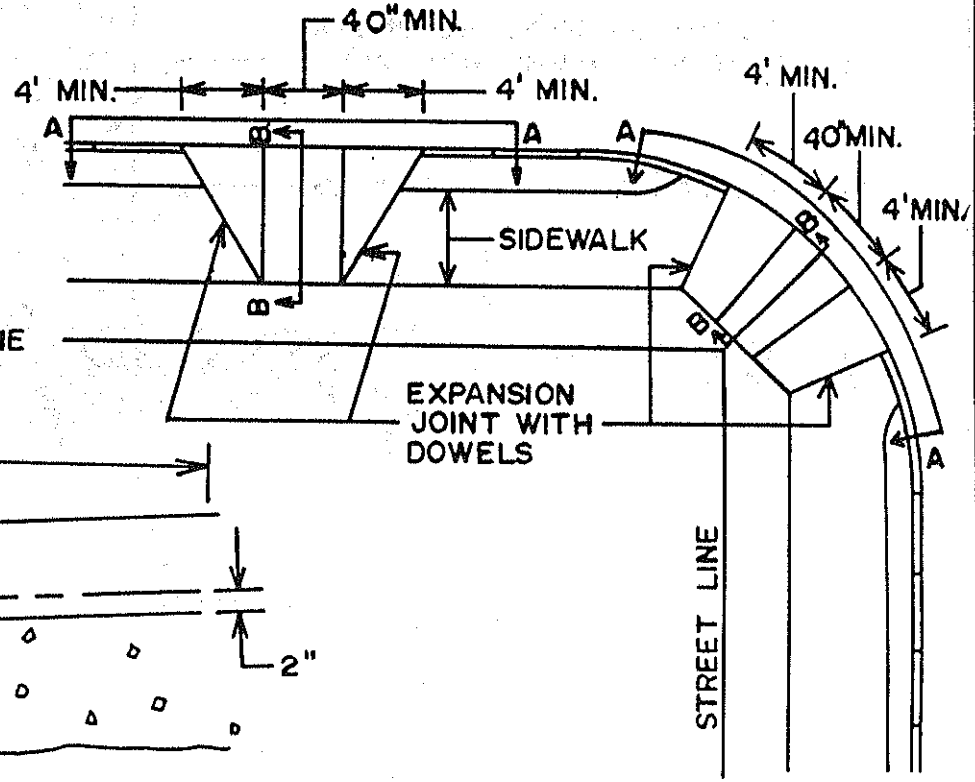


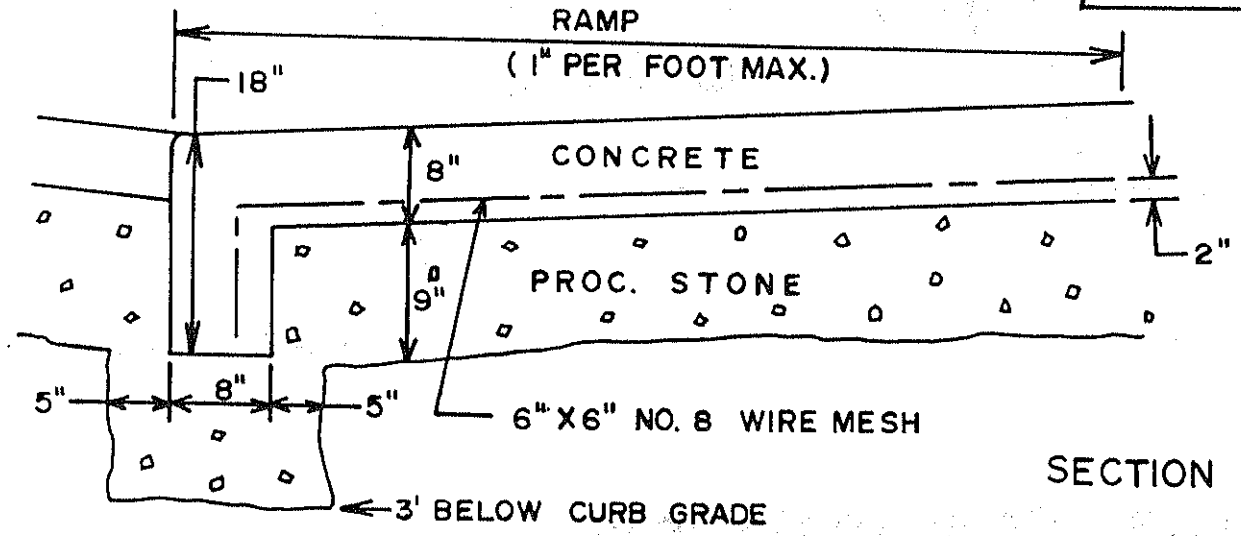
PLATE NO. 4

WHEELCHAIR RAMP



SECTION A-A





SECTION B-B

PLATE NO. 5

PERMANENT ROAD PATCH

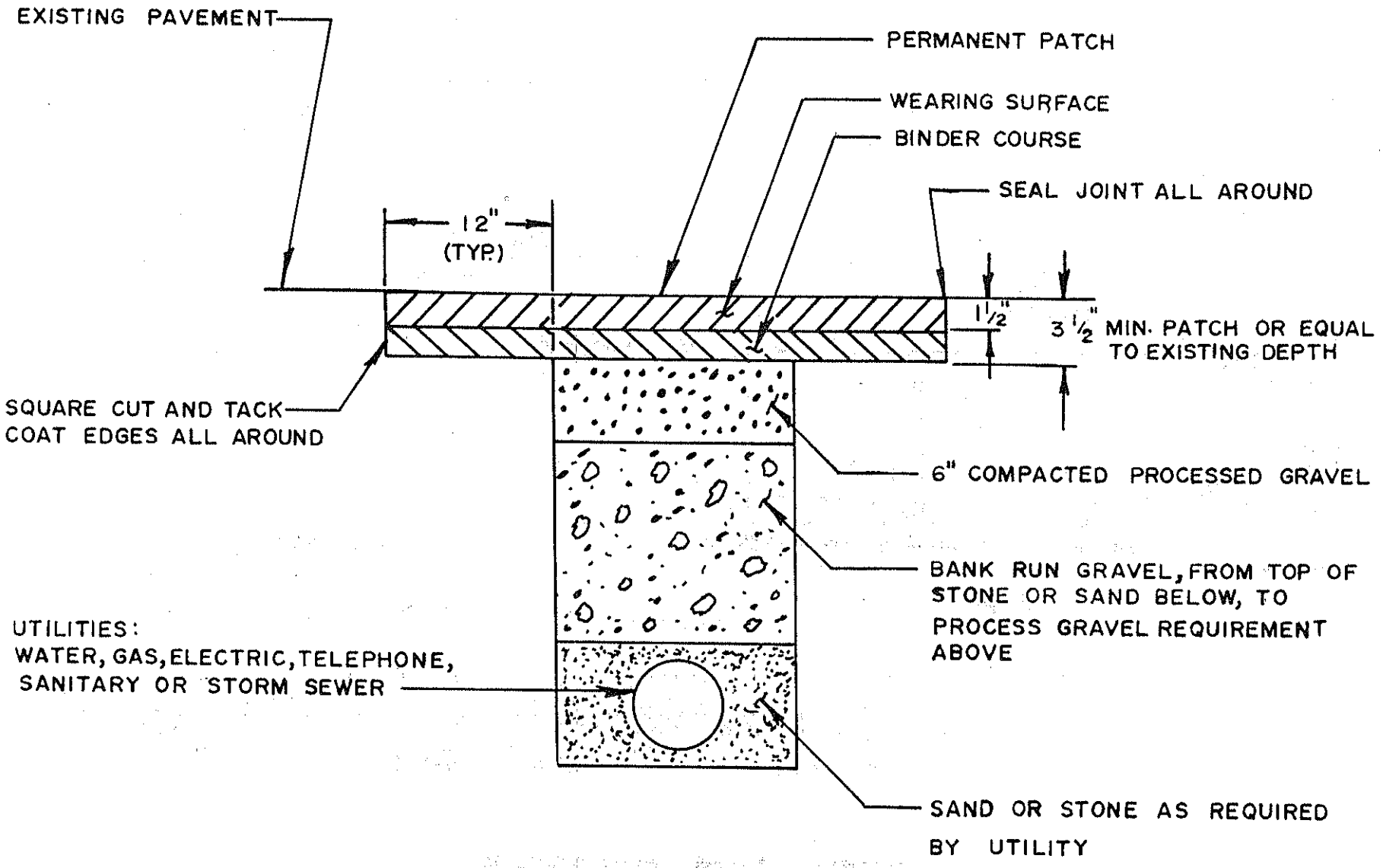


PLATE NO. 6